

Capital Projects Update

January 16, 2025

Lisa Coleman, Director of Engineering

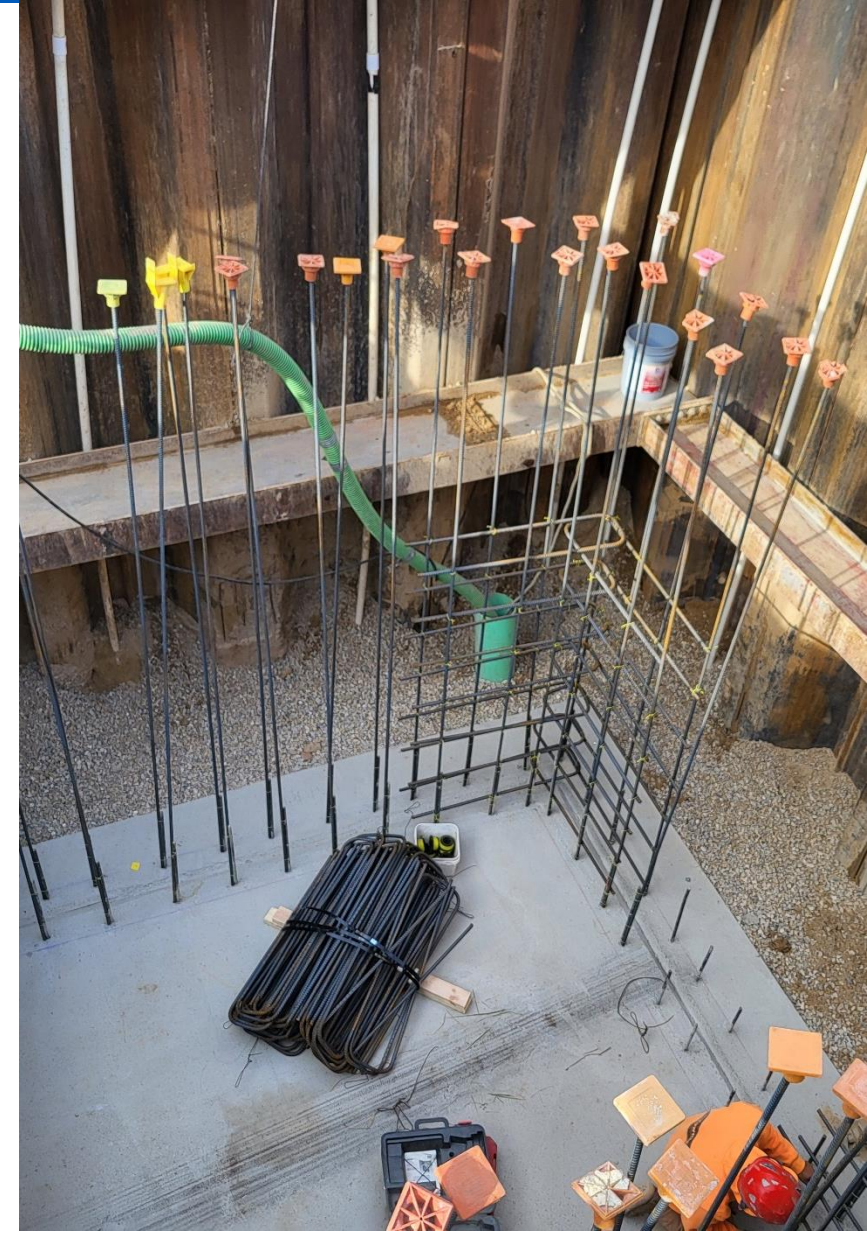
Madison Metropolitan Sewerage District



Preview

Overview of Projects in Planning/Design/Construction

- Projects completed in 2024, 2024 bids
- Project highlights



Planning

Treatment Plant

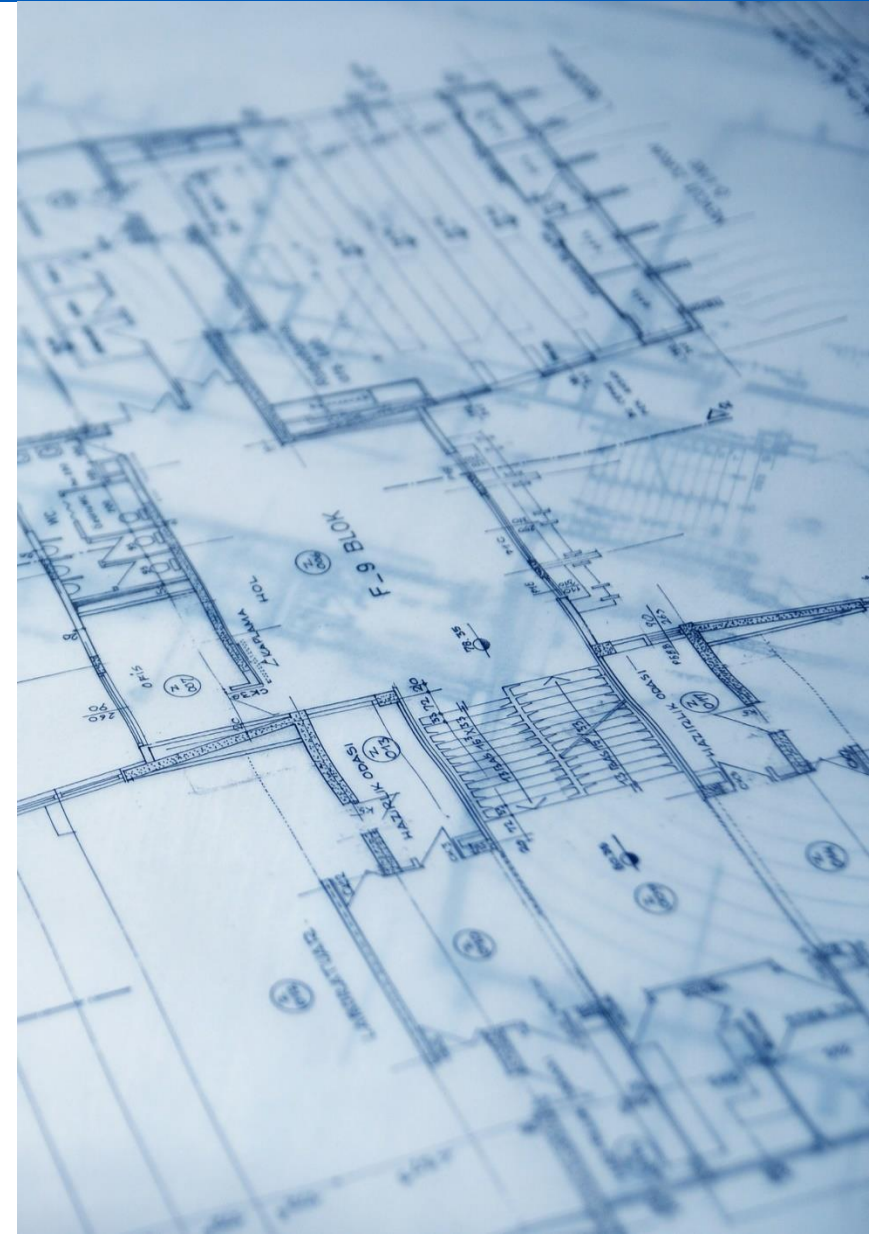
- Heat and Power Improvements
- Biosolids Facility Plan

Interceptors

- WI Rehab- Babcock to Dayton Street (C2027)
- WI Rehab-Farley to Marshall (C2027)
- West Interceptor on Regent St (Park to E. Campus Mall) (C2028)

Pumping Stations & Force Mains

- Crosstown Force Main Air Release Valve Saddle Tap Replacements



In design

Treatment Plant

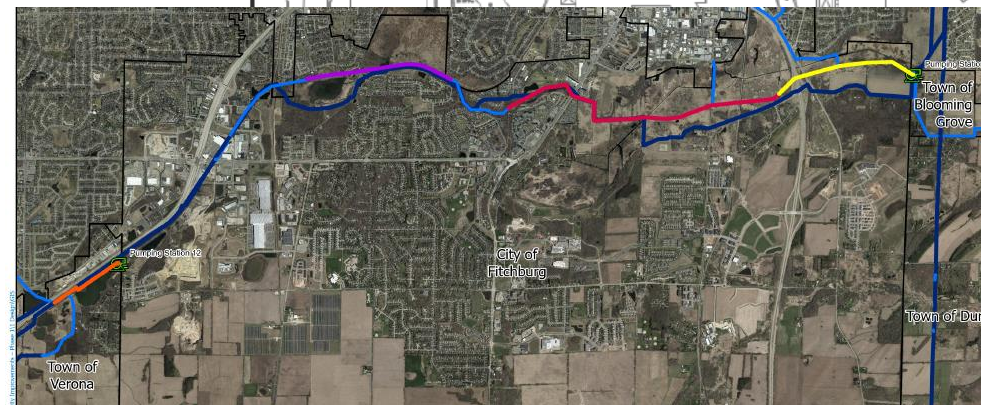
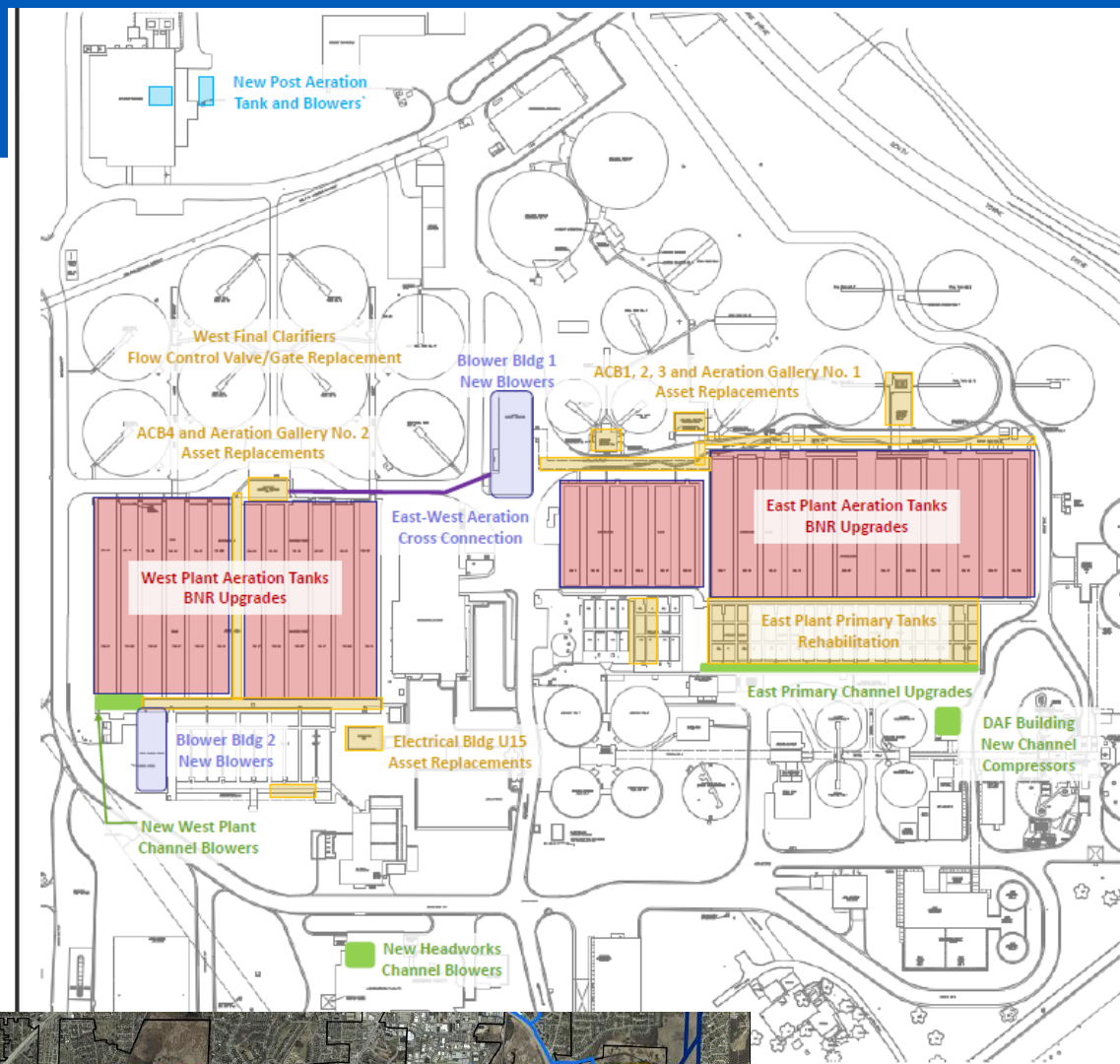
- Liquid Processing Phase 2 (bundled...)
- Lagoon Dike Improvements
- Dryer and Seeding Modifications
- W4 System Improvements

Interceptors

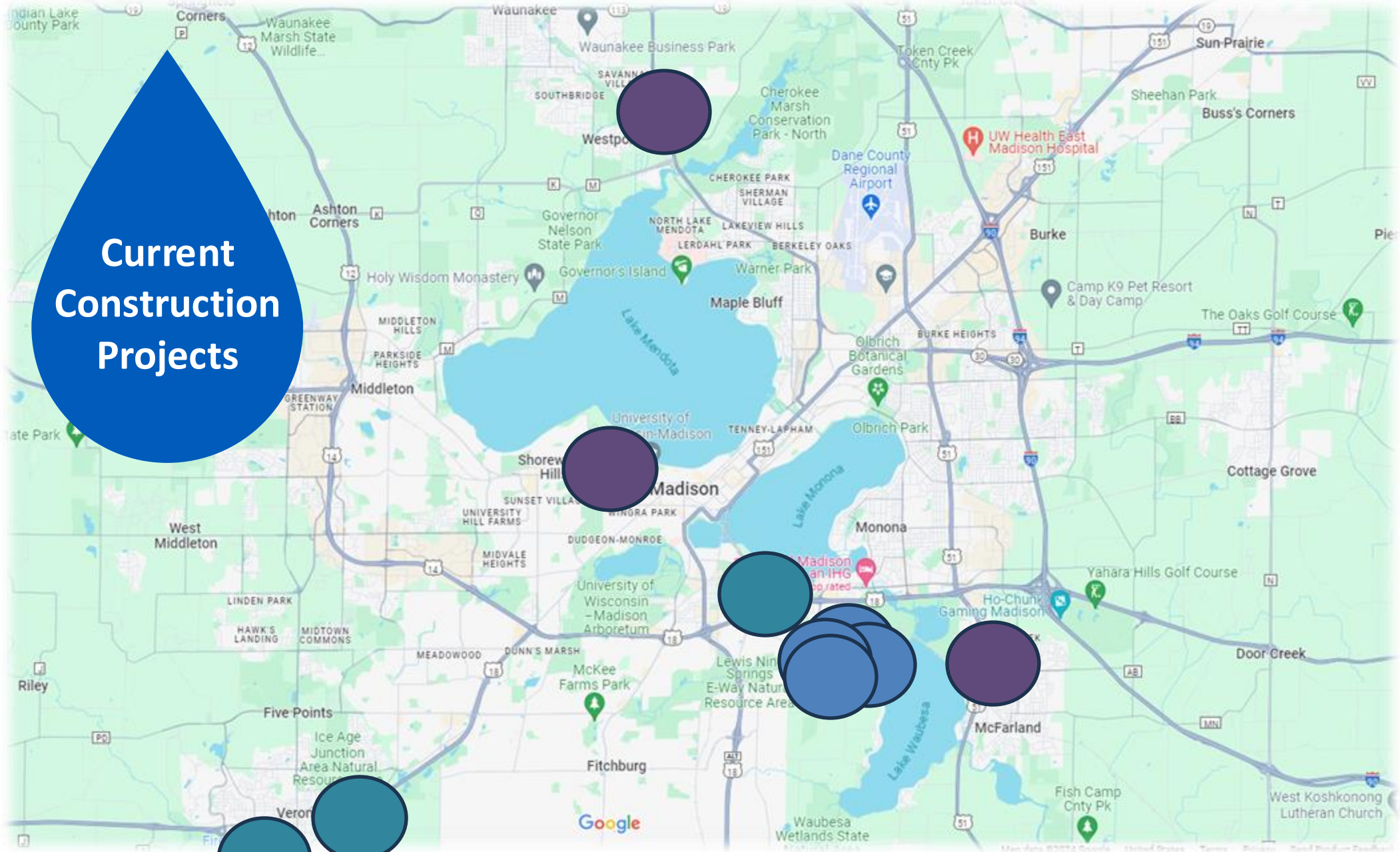
- Lower Badger Mill Creek Interceptor – Phase 6 C 2025/2026
- West Interceptor Rehab - Segoe Road to Shorewood Boulevard
- NEI-Truax Extension Rehab – C 2026/2027
- NSVI Capacity Improvements (Phase 1)
- NSVI Capacity Improvements (Phase 2)
- Southeast Interceptor Relocation at Yahara River

Pumping Stations & Force Mains

- Pumping Station Bar Screens
- Pumping Station 10 Force Main Leak



Current Construction Projects



Under construction

Treatment Plant

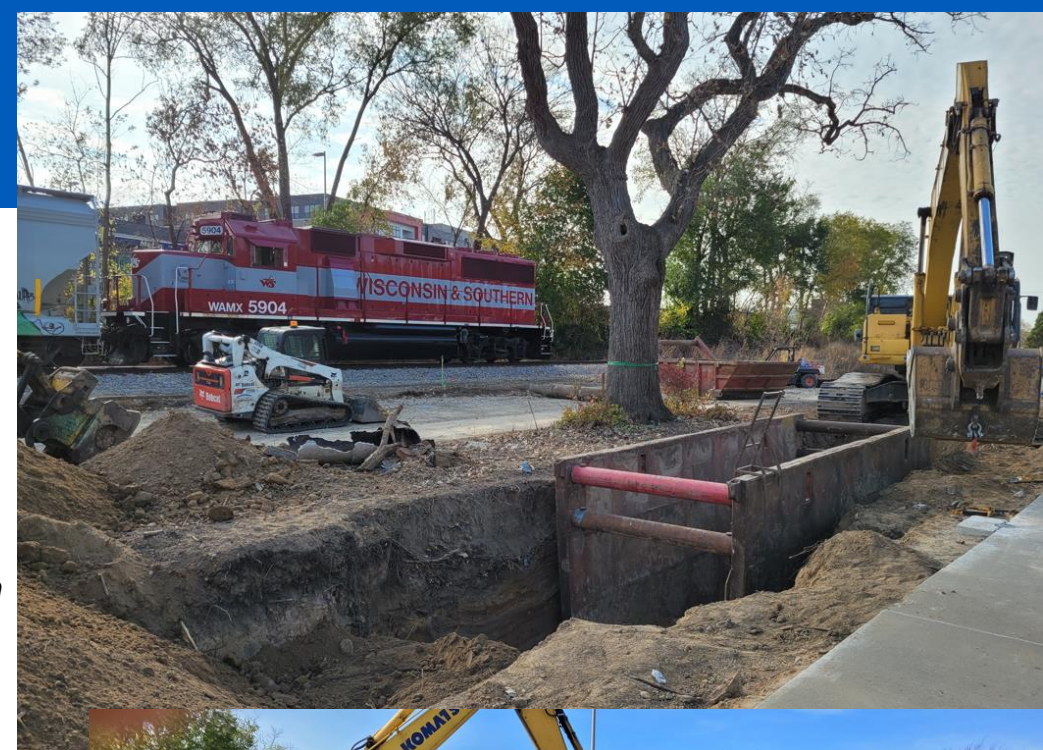
- Sludge Thickeners 1 and 2 Drive Replacement
- Electrical Service Equipment Replacement
- Flow Splitter Improvements
- 2021 Treatment Plant HVAC Improvement Project – *nearing completion*

Interceptors

- NEI – Waunakee Extension Capacity Improvements (Phase 1)
- Southeast Interceptor Rehabilitation on USH 51(Phase 1)
- West Interceptor Shorewood Relief Ph 3

Pumping Stations and Force Mains

- Pumping Station 17 Firm Capacity Improvements
- Pumping Station 17 Force Main Relief Ph 2 - *~70% complete*
- Pumping Station 4 Rehabilitation



Projects completed in 2024

Treatment Plant

- Maintenance Facility Rooftop Solar Panels

Interceptors

- Lower Badger Mill Creek Interceptor – Phase 5
- West Interceptor Rehab- Segoe Road to Shorewood Blvd (emergency 2023 sub-project)
- West Interceptor Shorewood Relief Phase 1

Pumping Stations and Force Mains

- Pumping Stations 13 and 14 Rehabilitation



2024 Bids

Pumping Station 17 Firm Capacity Improvements

- Bid Cost \$4,137,825

West Interceptor Shorewood Relief Ph 3

- Bid Cost \$6,835,503

NEI Waunakee Extension Capacity Improvements (Phase 1)

- Bid Cost \$8,712,981.50

Flow Splitter Improvements

- Bid Cost \$6,435,000

NSWWTP Electrical Service Equipment Replacement

- Bid Cost \$9,235,730

Southeast Interceptor Rehabilitation on USH 51 Phase 1-

- Bid Cost \$275,387





Project Highlights

Madison Metropolitan Sewerage District



Liquid Processing Improvements Phase 2

Energy Efficiencies

- Overall savings due to change to hybrid BNR system :
 - Energy usage reduced (~18%) when running in low DO
 - Or (~7-11%) if operational switch to high DO
- Blower Selection:
 - High Speed turbo blowers – more efficient than single stage geared
- Blower Configuration
 - Cross-connection of blowers more efficient
 - Separate low pressure blowers for headworks, east and west primary influent channels and west mixed liquor channel more efficient than supplying air from process blowers
 - East primary influent channel mixing strategy
- Blower control system -will minimize system operating pressure
- Diffuser selection and arrangement
 - Silicon tube diffusers
 - Low energy configuration

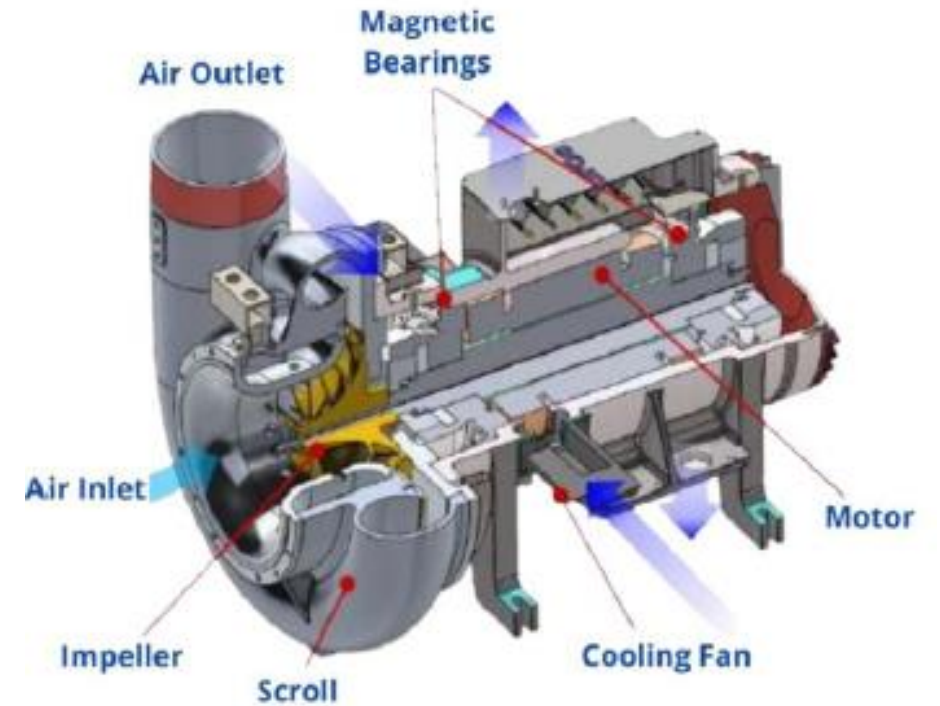


Figure 5-3. Example of Tube Membrane Diffusers.
(OTT Magnum FLEXSIL)

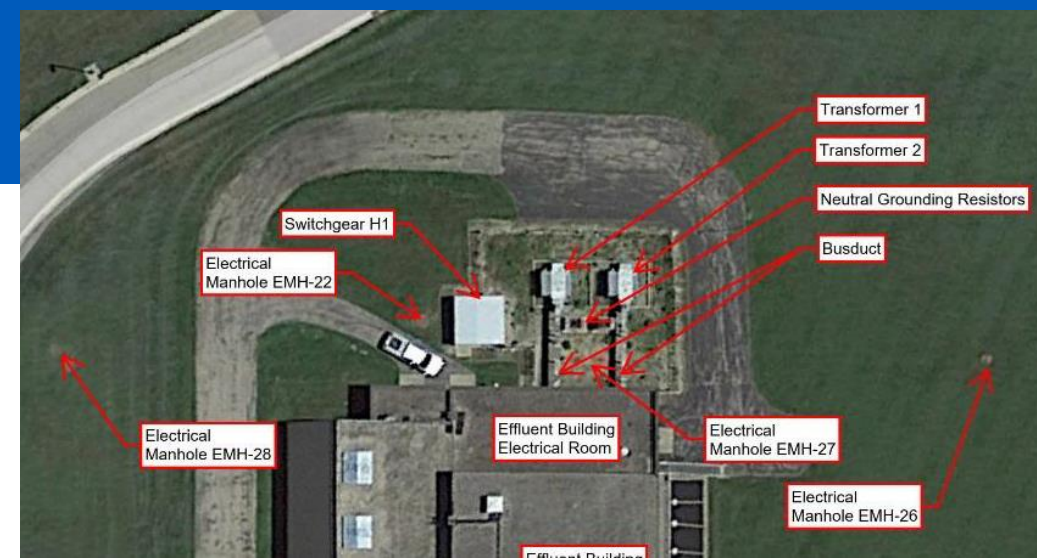
Electrical Equipment Service Replacement

In construction:

- Working on submittals – major equipment complete
- Expect long equipment lead times
- Work on building to house equipment starts this spring

MG&E work/Good news:

- Rerouting duct banks from what was designed since don't need to work around separate MG&E project – potential savings of several hundred thousand of the bid allowance.
- Annual savings from not selecting automatic switching of feeds, we are able to (and prefer to) switch manually.
- MG&E's work will add more resiliency of the grid itself- if local sub station is down, the plant will be able to be fed from other MG&E sub stations.

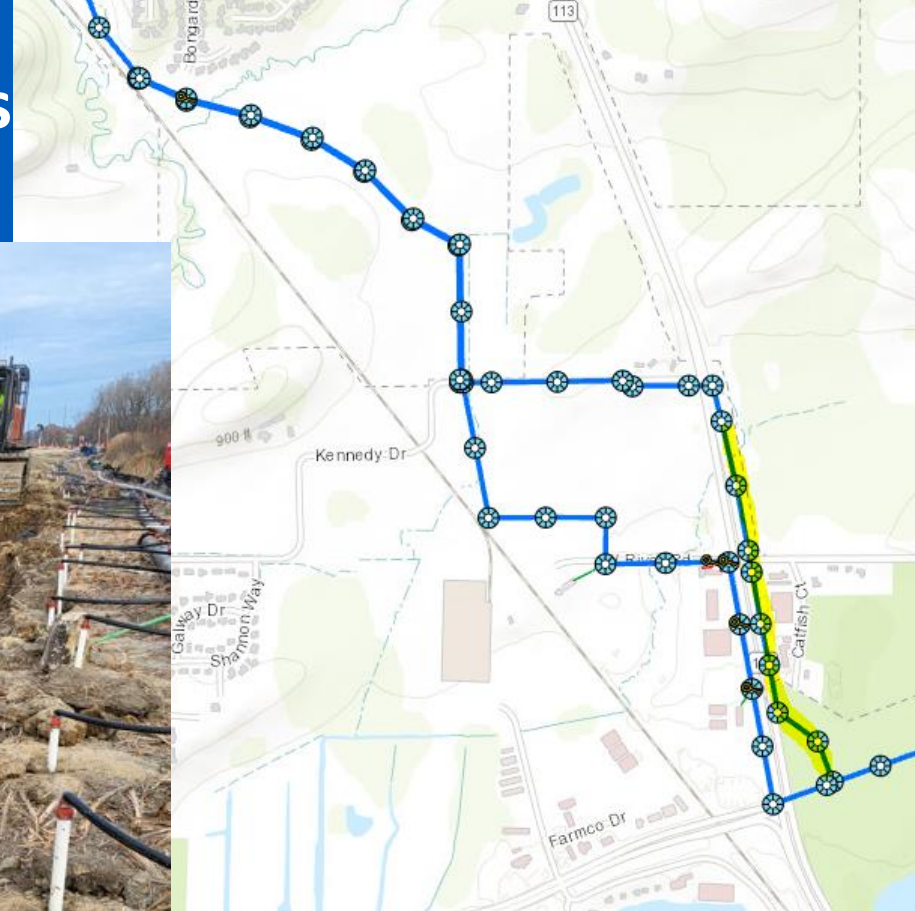


NEI -Waunakee Extension Capacity Improvements (Phase 1)

- Making great progress on pipe install, over 2700 feet in (total ~8800)
- Crossing River Rd complete Christmas week
- Starting bore soon & section N. of Kennedy Dr. Kennedy is last. Pipe complete in June 2025? (Temp easements 10/25).

Upcoming challenges:

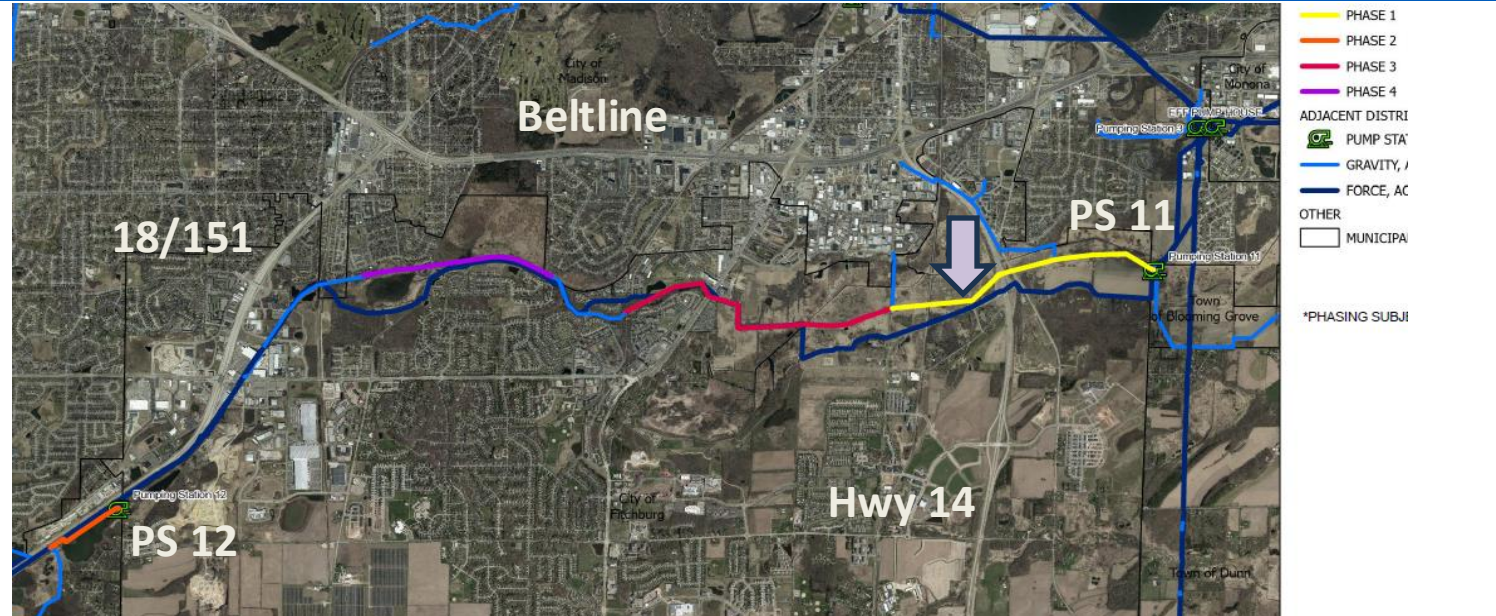
- Wetland areas
- Bore across 113 - bedrock



NSVI Capacity Improvements Ph 1 (and 2)

Design contracts with consultants on agenda today

- Phase 1 – between PS 11 and 12
 - Holistic look at whole corridor
 - Design of Phase 1 just upstream of PS 11
- Phase 2
 - Upstream of PS 12 to crossing under 151
 - Replace as soon as possible, due to condition issues noted during recent emergency repairs
 - Budget includes emergency repair #2 and #3
(#1 with PS 17 FM Phase 2)



Questions?

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